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IS : 6969 - 1973

Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR HANDLING AND SALE OF REFRIGERATED DRINKING WATER

UDC 663.6 : 613.6



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110001

Price Rs 4.00

November 1973

Revised Price

Rs 5 - 00 Gr 1

Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR HANDLING AND SALE OF REFRIGERATED DRINKING WATER

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Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR HANDLING AND SALE OF REFRIGERATED DRINKING WATER

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 23 April 1973, after the draft finalized by the Food Hygiene, Sampling and Analysis Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Sale of refrigerated drinking water in trolleys by itinerant vendors has become common in cities, especially during summer season. Such water is generally handled and sold by people lacking the basic knowledge and awareness of hygiene. Many times, the water is cooled by means of ice directly put into it. The water is often offered for sale in tumblers which are not cleaned properly. This standard is, therefore, intended to provide guidelines on requirements of hygiene during handling and sale of refrigerated drinking water with a view to safeguarding consumers' health.

0.3 This code is subject to the provisions of the Factories Act, 1948, and the Prevention of Food Adulteration Act, 1954, and the Rules framed thereunder as amended from time to time.

1. SCOPE

1.1 This code prescribes the hygienic conditions required for handling and sale of refrigerated drinking water and for water refrigeration plants which supply such water for sale.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Refrigerated Drinking Water — Water of potable quality obtained by cooling by refrigeration and not by direct insertion of ice.

2.2 Health Officer — The municipal health officer or any other officer of the health department, authorized by the health officer of the town, city, district or state on his behalf.

3. GENERAL

3.1 Licence for sale of refrigerated water through water trolleys shall be issued only to the person who owns a refrigeration plant duly licensed by the health officer.

4. REFRIGERATION

4.1 Refrigeration Plant

4.1.1 *Site and Premises*

4.1.1.1 The building in which the water is refrigerated for sale for human consumption shall be located in clean and healthy surroundings away from roadside where lot of dust arises due to vehicular traffic, garbage dumps, cattle stables, open sewage drains or other places likely to breed flies. Premises should not have objectionable odour or smoke. There shall be no accumulation of trash, garbage or similar waste in the vicinity of the plant. There shall be a suitable storage shed or room for water trolleys.

4.1.1.2 The structure of the building shall be of permanent nature and shall be suitable in size, construction and design to facilitate maintenance and hygienic operations. It should provide sufficient space for housing of equipment necessary for hygienic operations. The material of construction shall be brick, plaster, cement, concrete, tile or any other equivalent material which ensures cleanliness.

4.1.1.3 No portion of the building shall be used for domestic purposes unless separated by suitable partitions or locations or other effective means.

4.1.1.4 The floors of the rooms should be constructed of concrete or other equally impervious and easily cleanable material. They should be smooth, suitably sloped for drainage of water and provided with tapped drains.

4.1.1.5 Walls and ceilings of the rooms should have a smooth, non-absorbent light coloured surface, free from crevices and angles to facilitate their efficient cleaning. These shall be painted or lime-washed and cleaned as often as necessary.

4.1.1.6 The refrigeration unit shall have adequate lighting and ventilation keeping in mind the number of workers, their hours of work and nature of operation. Ventilation and lighting shall also be in accordance with the Factories Act, 1948, as amended from time to time. Proper ventilation is essential to prevent condensation and drippage. Exhaust fans shall be provided where necessary.

4.1.1.7 The refrigeration room shall be made flyproof, rodentproof and birdproof and should be provided with self-closing double doors. The doors and windows should be covered with flyproof wire gauze, and they should open outwards.

4.1.1.8 The rooms and the area surrounding the plant should be kept clean and dust-free.

4.1.1.9 The building shall be maintained in proper state of repair and cleanliness.

4.2 General Plant Hygiene

4.2.1 Refuse shall be collected in covered receptacles and shall not be allowed to scatter on the floor.

4.2.2 Adequate steps shall be taken to prevent infestation of cockroaches and other household pests.

4.2.3 When pesticides are used, care shall be exercised to prevent contamination of equipment and other materials. Under no circumstances shall these be used during processing.

4.2.4 Floors and drains shall be kept clean. In the refrigeration room, drains shall be provided with detachable covers.

4.2.5 No lavatory, sink, cesspool, or garbage shall be so situated or maintained that odours or fumes therefrom pervade any room where the water is cooled or filled in trolleys.

4.2.6 Proper places shall be provided for storage of brooms, brushes, buckets and other cleaning gear.

4.2.7 The factory effluents shall not be let off on road or adjacent fields.

4.2.8 Window glass and light fittings shall be maintained clean and dust-free at all times.

4.2.9 There shall be no cobwebs in any part of the unit. Birds and domestic animals shall not be allowed in any part of the unit.

4.3 Equipment and Container Cleanliness

4.3.1 *Installation and Construction of Equipment* — The equipment should be constructed and installed in such a manner as to facilitate efficient cleaning and sanitization and easy dismantling and assembling of all the parts that come in contact with water. All the equipment, containers, lids and pipes shall be smooth, impervious and corrosion resistant. All the materials used for construction of those surfaces which come into

contact with the water shall be non-toxic, preferably of stainless steel (*see* grade 07 Cr19 Ni9 of IS : 1570-1961*) or of aluminium alloy (*see* IS : 20-1959†).

4.3.2 Cleaning and Sanitization — All the containers and lids should be cleaned thoroughly with the use of sodium carbonate or sodium bicarbonate or any other suitable detergent solution and sanitized with at least 50 ppm chlorine solution prior to their use. The residual chlorine may be removed by flushing the equipment with water to be cooled.

4.4 Water Supply

4.4.1 Maximum care shall be taken with regard to both chemical and microbiological quality of water.

4.4.2 For quality tolerances for water used for cooling, IS : 3957-1966‡ should be referred to as guideline.

4.4.2.1 There shall be an adequate supply of safe and potable water.

4.4.3 The water prior to storage should be prechlorinated between 0.2 to 0.5 ppm of residual chlorine.

4.4.4 The storage tanks for water should, unless completely sealed, be kept covered with tight-fitting lids, examined daily and cleaned properly and sanitized by spraying 100 ppm chlorine solution at least once every month.

4.4.5 Water sample shall be got periodically examined, chemically and bacteriologically, as desired by the licensing authority. A record of such examinations shall be maintained.

4.4.6 Running water under pressure shall be easily accessible to all rooms and areas in which water is cooled and equipment are washed.

4.4.6.1 Hot and cold water in ample supply shall be provided for plant clean-up needs, where necessary.

4.5 Employee Hygiene

4.5.1 Every person employed in the factory shall be medically examined by an authorized registered medical practitioner and the examination shall include X-ray of the chest for tuberculosis. The examination shall also include: examination of stool for protozoa and helminthic infestation for those parasites which are transmitted by ingestion, and for the presence of *Salmonella*, *Shigella* species and *Vibrio cholerae*; urine; and blood examination for venereal diseases. Subsequently, the employee shall be medically

*Schedules for wrought steels for general engineering purposes.

†Specification for cast aluminium and aluminium alloys for utensils (*second revision*).

‡Quality tolerances for water for ice manufacture.

examined once a year or more frequently, if necessary, to ensure that he is medically fit and free from communicable diseases.

4.5.1.1 It shall be impressed on all employees that they should notify the medical officer and management cases of fever, vomiting, diarrhoea, typhoid, dysentery, boils, cuts and sores and ulcers (however small), discharging ears and notifiable diseases occurring in their own homes and families.

4.5.1.2 No worker who is suspected to be suffering from any of the disorders listed in **4.5.1.1** shall be permitted to work inside the plant. The supervisor shall check the personal hygiene of the workers before the start of work and whenever they enter the refrigeration area after any absence.

4.5.2 Employees shall keep their finger nails short and clean and wash their hands with soap or detergent and water before commencing work and after each absence, specially after using sanitary conveniences. Towels used for drying hands should be clean. No worker should allow his hands or any part of his body or clothing to come into contact with the water which is meant for cooling. He should adopt strict hygienic practices so as to avoid adding any microbial contamination to the water.

4.5.3 All employees shall be inoculated and vaccinated against the enteric groups of diseases once a year and against smallpox once in two years. In case of an epidemic all workers shall be inoculated. A record shall be maintained.

4.5.4 No worker shall be allowed to work without proper clothing and footwear.

4.5.5 Employees shall be provided with clean uniforms (preferably white) or aprons or both and clean washable caps, where necessary.

4.5.5.1 Separate room or place for changing the clothes shall be provided. The clothes shall not be hung in the refrigeration area.

4.5.5.2 The uniforms shall not be worn outside the plant but put on just before starting the work and changed when leaving.

4.5.6 Eating, spitting, nose cleaning or the use of tobacco in any form including smoking or chewing betel leaves shall be prohibited within the refrigeration area of the unit. Notice to this effect shall be prominently displayed and enforced.

4.5.7 Sufficient and suitable sanitary conveniences shall be provided, maintained and kept clean in every factory. The conveniences shall be properly lighted. Separate conveniences shall be provided for each sex. The conveniences should have self-closing doors which shall not open directly into any work room in the factory. The conveniences shall always be maintained clean and in good repairs.

4.5.8 Sufficient number of latrines and urinals and wash basins with adequate provision of nail brushes, soap and towels, in the prescribed manner should be provided, conveniently situated and accessible to workers at all times while they are at the factory (*see also* Table 3 of IS: 1172-1971*). The wash basins should be installed in or alongside the sanitary conveniences.

5. SALE

5.1 Water Trolleys

5.1.1 The main body of the container shall be made of stainless steel conforming to any grade of IS: 5522-1969† or aluminium alloy conforming to IS: 21-1959‡.

5.1.2 The pump, if used, for taking out the water from the tank shall be made of stainless steel and no leather parts should be used in the pump.

5.1.3 Insulation between outer and the inner tanks should be of the cork or fibre glass or any other material which should be inert and does not have corrosive action with metal. Outer and inner tanks shall be hermetically sealed.

5.1.4 The water tank of the trolley shall be washed with bleaching powder at least once a week. The inner tank in direct contact with the water shall be rinsed with chlorinated water before filling it up with fresh refrigerated water.

5.1.5 The water trolleys shall be locked or sealed by the licensee before the start from the cooling plant. The seal put on the trolley by the licensee shall not be broken by the vendor.

5.1.6 The water trolleys shall be maintained in good repair, clean and hygienically fit.

5.2 Tumblers — The tumblers for serving the water to the customers should preferably be made of paper and of disposable type. In case tumblers of glass, metal, plastics or other suitable material which are used again and again after cleaning are used, proper arrangements shall be provided for washing and disinfection of tumblers. The tumblers should be washed and disinfected with chlorine solution (200 to 300 ppm of available chlorine) and then washed with potable water.

*Code of basic requirements for water supply, drainage and sanitation (*second revision*).

†Specification for stainless steel sheets, coils and circles for utensils and hospitalware.

‡Specification for wrought aluminium and aluminium alloy for utensils (*second revision*).

5.3 Vendor Hygiene — The requirements of hygiene of vendors for sale of water shall be the same as those of the employee hygiene in the refrigeration plant (*see 4.5*).

5.3.1 The record of inoculations and vaccinations of the vendor shall be kept at site.

5.4 General

5.4.1 Trolleys shall not be plied from place to place, but shall be parked on the allotted site in such a manner as to cause no obstruction or hindrance to vehicular or pedestrian traffic.

5.4.2 Ice shall not be added to the water tank of the trolley under any circumstances.

INDIAN STANDARDS

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IS:

- 2491-1972 Code for hygienic conditions for food processing units (*first revision*)
- 5059-1969 Code for hygienic conditions for large scale biscuit manufacturing units and bakery units
- 5837-1970 Code for hygienic conditions for soft drinks manufacturing units
- 5839-1970 Code for hygienic conditions for manufacture, storage and sale of ice-creams
- 6540-1972 Code for hygienic conditions for manufacture and handling of ice for human consumption
- 6541-1972 Code for hygienic conditions for establishment and maintenance of mid-day-school meal programme
- 6542-1972 Code for hygienic conditions for fruit and vegetable canning units
- 6968-1973 Code for hygienic conditions for *PAN* (betel) stalls and vendors
- 6969-1973 Code for hygienic conditions for handling and sale of refrigerated drinking water
- 7003-1973 Code for hygienic conditions for sago (*SABOODANA*) manufacturing units
- 7005-1973 Code for hygienic conditions for production, processing, transportation and distribution of milk

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